SECOND Section

This item has been moved and re-numbered as number 8

NOTE!

#3 $5\cos(x)+7=5$

$\Rightarrow 5\cos(x) = -2$

$\Rightarrow \cos(x) = -2/5$

Quadrant Check:

QII QIII

Ref. Angle

$x = \cos^{-1}(2/5)$

$= 1.16$

1.16

$x = \pi - 1.16$

$= \boxed{1.98}$

1.16

$x = \pi + 1.16$

$= \boxed{4.30}$

#6 $\sin(2x) + \cos(x) = 0$

$\Rightarrow 2\sin(x)\cos(x) + \cos(x) = 0$

$\Rightarrow \cos(x)(2\sin(x)+1) = 0$

$\Rightarrow \cos(x) = 0$ or $2\sin(x)+1 = 0$

$\Rightarrow \boxed{x = \pi/2}$

$\boxed{x = 3\pi/2}$

or $\Rightarrow 2\sin(x) = -1$

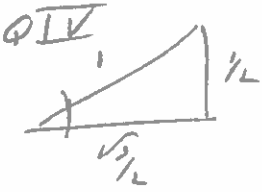
$\Rightarrow \sin(x) = -1/2$

Quad. Check:

QIII QIV

Ref x:

$x_R = \pi/6$



so

$x = \pi + \pi/6$

$= \boxed{7\pi/6}$

$x = 2\pi - \pi/6$

$= \boxed{\frac{11\pi}{6}}$

#7 $7\sin^2(x) - \sin(x) - 2 = 0$

DOES NOT FACTOR.

$\Rightarrow$ USE QUADRATIC.

$\sin(x) = \dfrac{-b \pm \sqrt{b^2-4ac}}{2a}$

so

$\sin(x) = \dfrac{-(-1) \pm \sqrt{(-1)^2-4(7)(-2)}}{2(7)}$

$= \dfrac{1 \pm \sqrt{1+56}}{14}$

$= \dfrac{1 \pm \sqrt{57}}{14}$

$\approx \dfrac{1 \pm 7.55}{\ldots}$

$= \dfrac{1+7.55}{14}$ OR $= \dfrac{1-7.55}{14}$

$\approx .611$ or $\approx -.468$

Quad check

QI, II

$x_R = \sin^{-1}(.611)$

$\approx .657$

Quad check

QIII QIV

$x_R = \sin^{-1}(.468)$

$\approx .487$

cont.

(#7) cont.

we have

$x_1 \approx .657$ in

QI QII

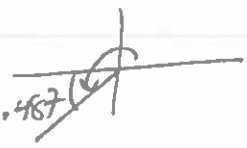
$\Rightarrow x = .657$ or $x = \pi - .657$

$= \boxed{2.48}$

we have

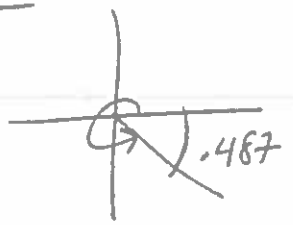
$x_2 \approx -.487$

QIII QIV



$x = \pi + .487$

$\approx \boxed{3.63}$



$x = 2\pi - .487$

$\approx \boxed{5.80}$

(#8) This is the * item # 3 from this section in the solutions